Ritesh Agarwal

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SUMMARY

A highly motivated and results-oriented software engineer with 14+ years of experience in C and distributed systems, leveraging expertise in building scalable and reliable software solutions.

EXPERIENCE

Lead Software Development Engineer   Apr 2024 - Present
Zscaler   *Pune, MH, India*

- Collaborated with cross-functional teams to define feature requirements and deliver multiple high-quality/impact customer-focused features, resulting in a measureable increase of Net Annual Recurring Revenue(NARR).
- Expedited resolution of critical blocker issues across development, release and production (mainline) branches, maintaining continuous delivery pipelines and ensuring production stability.
- Enhanced team productivity and code quality by triaging bugs for efficient resolution, conducting thorough code reviews, and mentoring team members to accelerate their contributions.
- Streamlined weekly reporting processes by gathering and summarizing team status, enhancing visibility into feature health for senior management and cross-functional partners.
- Acted as the on-call development engineer for the India Time Zone (IST), providing frontline support for production systems and resolving critical alerts and incidents on a rotational basis.
- Made use of structured interviewing techniques to ensure standardized, fair, and effective candidate evaluation, enhancing both candidate experience and organizational brand value.
- Enhanced deliverable quality and efficiency by adopting an 'AI-first' approach. Leveraged internal AI tools (Gemini, ChatGPT) for daily tasks, allowing for early detection of potential issues and areas for improvement.

Lead Software Development Engineer   2019 - Apr 2024
Pubmatic   *Pune, MH, India*

- Developed and led multiple customer-targeted and strategic features and ensured that they were delivered with no open static code analyser warnings, 70-80% Cmocka Dev Unit Test coverage with Address Sanitizer checks, 80-90% QA Automation Coverage and small-scale A/B and Sanity production testing including backward-compatibility and end-to-end tests leading to multiple successful feature deliveries with high quality ensuring timely and smooth releases.
- Oversaw multi-geo week-long phased releases (20%, 50%, 100%) by analyzing KPIs between new and mainline code, providing timely and reliable go/no-go decisions at each stage to ensure production stability and enable successful and timely rollouts or necessary investigations/rollbacks.
- Enhanced feature visibility for senior management and cross-functional partners by streamlining weekly reporting, providing concise summaries of team status and key insights.
- Reduced surprise issues and design gaps by promoting truth table-based requirement discussions, ensuring comprehensive scenario analysis and early issue detection when costs are lowest.
- Guided an 8-member cross-functional Agile team (Development and QA) as Scrum Master and Team Lead, significantly enhancing Agile maturity from foundational Level 0 to advanced Level 4 through consistent encouragement and implementation of best practices.
- As Scrum Master for a distributed team (US/India), facilitated Agile ceremonies to align on acceptance criteria and dependencies, and drove a continuous improvement culture through post-sprint feedback, resulting in fewer re-opened stories, greater sprint commitment accuracy, and a tangible reduction in team impediments.
- Ensured high service uptime and reliability as a rotational on-call development engineer, proactively identifying and resolving production issues through analysis of logs, dashboards, and stats.
- Pioneered and implemented a real-time, scalable, in-house stats solution, fundamentally changing the team's debugging workflow. This new approach eliminated the day-long delays of the traditional ETL process, enabling faster and more confident issue resolution.
- Developed and deployed a suite of engineering tools for static code analysis, memory error detection (Address Sanitizer), and a containerized (Docker) development environment, leading to a significant improvement in code quality and developer efficiency.
- Played a key role in the hiring process for both backfill and expansion positions by participating in in-office, remote, and on-campus drives. Responsibilities included designing questions for initial filtering rounds and interviewing qualified candidates.

Senior Software Development Engineer
2015 - 2018

Cisco Systems
San Jose, CA, US and Bengaluru, KA, India

- Led the development and maintenance of core infrastructure components (Syslog, Sdwrap, Mtrack) for Cisco's Nexus Series, directly contributing to the stability and feature set of a market-leading networking product.
- As a key contributor to Cisco's Virtual Packet Core NFV platform, independently designed and implemented features and POCs, helped reach various Product Milestones of the strategic initiative.
- Made significant contributions to the Virtual Packet Core NFV platform through a series of milestone-driven features, including DPDK integration, Virtio/Pass-through/SRIOV POCs, Bulkstats implementation, and a 32-bit to 64-bit migration.
- Oversaw the complete lifecycle of lab equipment, from procurement and installation to daily usage of Cisco Nexus switches, Cisco UCS servers, and Cisco TOR switches, ensuring seamless development and testing workflows for the team.

Graduate/Research Assistant
2013 - 2015

University of Illinois, Chicago
Chicago, IL, US

- Improved the reliability of the Ethos OS, a security-focused, paravirtualized OS on the Xen hypervisor, by re-architecting the handling of asynchronous IPC system calls. This C-based kernel feature, validated by extensive Go test suites, eliminated a key source of instability during program termination. Additionally, I produced high-quality LaTeXdocumentation to reflect these critical updates.
- Provided comprehensive IT administration for the Research Resources Center, supporting cutting-edge molecular biology research.
    * **Hardware:** Managed and maintained physical blade servers.
    * **Software & Services:** Administered ZFS, Samba, Git, mail, web, print, and database servers, as well as the underlying network infrastructure.

Graduate Intern
2013

Yahoo! Inc
Sunnyvale, CA, US

- Defined and implemented essential monitoring stats and dimensions for the Nicira SDN Solution based on cost-benefit analysis through multiple brainstorming sessions with the team. This enabled seamless integration with Yahoo's YAMAS and successful deployment in Yahoo's Openstack cloud, ensuring effective monitoring and demonstrating operational readiness within Yahoo's infrastructure.

Software Development Engineer
2010 - 2012

Cisco Systems
Pune, MH, India

- Successfully completed an intensive training program and accelerated onboarding as a new engineer through practical, hands-on experience, quickly mastering processes to resourcefully address legacy issues, customer-reported bugs, and implement customer-targeted features, becoming a key contributor to the team.
- Followed a comprehensive bug-fixing process that involved close collaboration with the QA team for issue reproduction and root-cause analysis. Implemented fixes with thorough unit tests covering all relevant scenarios, and validated them through code reviews and private build regression suite runs.
- Delivered numerous features with high confidence, leveraging extensive code reviews and automated, pyATS-driven truth-table unit testing to minimize bugs and ensure timely release deployments. This proactive testing approach also effectively caught feature regressions stemming from bug fixes during development.

EDUCATION

University of Illinois, Chicago

Master of Science in Computer Science
Chicago, IL, US

- GPA: 3.9/4.0
- Relevant Coursework: Computer Networks, Computer Architecture, System Security, Algorithms, OOP/OOAD and Environment, Graph Theory.

Pune Institute of Computer Technology

Bachelor of Engineering in Information Technology
Pune, MH, India

- First Class with Distinction(GPA: 3.6/4.0)

SKILLS

Languages: C , C++ (OOP), Go, Python, Shell Scripting, Java, Perl

Platform: Linux, FreeBSD

Technology Areas: Distributed Systems, Networking, CyberSecurity, Virtualization, Observability, AI

Virtualization/Containerization: KVM/Qemu, VMWare ESXi, Xen, Docker, iocage

Databases: MySQL, PostgreSQL, Memcached, Redis, Aerospike

Databases(OLAP): RedisTimeSeries, Apache Druid, Snowflake, ElasticSearch

Programming: Multithreading/Concurrent, Device Drivers, Data Structures, Algorithms

Networking: Socket Programming, Inter Process Communication(IPC), Wireshark, tcpdump, NFV

Network Protocols: TCP/IP, UDP, HTTP, VLAN

Observability/Monitoring: PagerDuty, Grafana, InfluxDB, Adhoc dashboarding using Zeppelin

Reporting: Jupyter, Zeppelin

AI Tools: ChatGPT, Gemini, GeminiCLI(Gemini Code Assist)

Software Engineering: Agile Methodologies (Certified and proven Scrum-master), Test Driven Development, JIRA

CI/CD: Git based Branching Stratergies, Jenkins based pipelines

Code Browsing/Refactoring: emacs, cscope, opengrok, etags, awk, sed, clang, lex, yacc, make

Linux: Linux Signal Handling, Virtual Memory, Linux Bringup

Publishing: Confluence, LaTeX

Code Review: Pull Request based review, Codesonar/Coverity Static code analysers

Code Debugging/Testing: gdb, cmocka, Valgrind, Address Sanitizer, pyATS, Gcov(code-coverage)

Kernel Hacking: ProcFS, DebugFS, Tracing, Kprobles, Workqueues, Device drivers, Block Device Driver

Others: REST API, JSON, Open vSwitch, AdTech, WURFL, Cisco UCS servers, Cisco Nexus switches